PARALLEL DECIMATOR ADAPTIVE FILTER FOR ALL-RATE GIGABIT-PER-SECOND MODEMS

ABSTRACT

Parallel adaptive filters and filtering methods that enable processing of an input signal in a circuit that has an clock speed many times slower than the input rate of the input signal that is processed. The present invention extends the use of a polyphase decimator structure to processes a data stream requiring a low pass filtered bandlimited (low-rate) output that is used for high-rate output structures. The filters and methods break an input data stream into parallel paths that efficiently produce a bandlimited (decimated, low-rate) filtered output. Each of the parallel paths is processed at a decimated rate to provide a filtered output signals corresponding to a filtered version of the input signal